UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/513,706	02/25/2000	Paul F. Lodrige	SUN1P398/P4612	7285

22434	7590	11/20/2003	

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EXAMINER
TRUONG, LECHI

ART UNIT	PAPER NUMBER
2126	

12

DATE MAILED: 11/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/513,706	LODRIGE ET AL.
	Examiner	Art Unit
	LeChi Truong	2126

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 August 2003* .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6 and 10-23* is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 10-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

     If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All b)☐ Some * c)☐ None of:

         1.☐ Certified copies of the priority documents have been received.

         2.☐ Certified copies of the priority documents have been received in Application No. _____ .

         3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

     a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)	4)☐ Interview Summary (PTO-413) Paper No(s). _____ .
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)	5)☐ Notice of Informal Patent Application (PTO-152)
3)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .	6)☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

1.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of

making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it

pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode

contemplated by the inventor of carrying out his invention.

2.   Claim **23** is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter

which was not described in the specification in such a way as to reasonably convey to one skilled

in the relevant art that the inventor(s), at the time the application was filed, had possession of the

claimed invention.

As to claim 23, Applicant cited the limitation " without compromising data integrity ".

It is not clear where those limitations are supported in the specification.

Claim Rejections - 35 USC § 103

3.   Claims **1-4, 10, 11, 16-18, 21, 22** are rejected under 35 U.S.C. 103(a) as being

unpatentable over Admit prior Art (APA) (page 1-3) in view of AIX Version 4.3

Communications Programming Concepts.

As to claim 1, APA teaches a first message, second message (instances messages, page 3,

ln 9-10), a first thread, a second thread (two or more threads, page 3, ln 9-11), the two software

modules (a stream module, page 3, ln 9-13), a first processor, a second processor (different

processors, page 3, ln 9-11), the synchronization queue (synchronization queue, page 2, ln 25-30

to page 4, ln 1-5).

APA does not teach propagating a first message to or from a synchronization queue while allowing a second thread to propagate a second message between the software modules. However, AIX teaches in stream synchronization, a multi-thread environment, several threads may access the same stream, the same module, or the same queue at the same time. Stream use a synchoronization-queueing (stream synchronization, page 1-4)

It would have been obvious to apply the teaching of AIX to APA in order to ensure that no data inconsistency may occur when two different threads from multi- thread environment can access the upstream and down stream at the same time.

As to claim 2, APA teaches respective portions of first a second message (instances messages, page 3, ln 9-11).

APA does not teach concurrently propagate a first and second messages to or from a synchronization queue. However, AIX teaches in stream synchronization, a multi-thread environment, several threads may access the same stream, the same module, or the same queue at the same time. Stream use a synchoronization-queueing (stream synchronization, page 1-4)

It would have been obvious to apply the teaching of AIX to APA in order to ensure that no data inconsistency may occur when two different threads from multi- thread environment can access the upstream and down stream at the same time.

As to claim 3, APA teaches the second thread (one single thread, page 3, ln 15-23), the first message, second message (messages, page 3, ln 15-23), two software modules (the STREAMS model, page 3, ln 15-23), the first thread (all the threads, page 3, ln 15-23).

As to claim 4, APA teaches a lock (queue lock, page 3, ln 15-23).

As to claim 10, APA teaches the two software modules (stream modules 104 and 106, page 2, ln 1-4), a stack as STREAM modelers (a STREAMS, page 2, ln 1-16).

As to claim 11, APA teaches first and second software modules (the stream modules 104 and 106, page 2, in 17-24), main queue (a down-queue 112, page 2, ln 17-24), messages (messages (data), page 2, ln 17-24), an auxiliary queue (synchronization queue 116, page 3, ln 1-2), processors (two or more threads (or processes, page 3, ln 9-11).

APA does not teach a propagation controller operating to enable at least two processors... to concurrently propagate message to or form the auxiliary queue of the second software module. However, AXI teaches in stream synchronization, a multi-thread environment, several threads may access the same stream, the same module, or the same queue at the same time. Stream use a synchoronization-queueing (stream synchronization, page 1-4)

As to a computer system of claim 16, see the rejection of claim 10.

As to a computer readable media of claim 17, refer to the rejection of claim 1. Further APA teaches computer program code (an application, page 2, ln 11-12).

As to a computer readable media of claim 18, see the rejection of claim 2.

As to claim 21, APA teaches a second thread (two or more threads, page 3, ln 9-11), second message (instances messages, page 3, ln 9-10), the first synchronization queue (synchronization queue, page 2, ln 25-30 to page 4, ln 1-5).

As to claim 22, APA teaches a second thread (two or more threads, page 3, ln 9-11), second message (instances messages, page 3, ln 9-10), the first synchronization queue (synchronization queue, page 2, ln 25-30 to page 4, ln 1-5), the second synchronization (queue 120, Fig.1).

4.   Claims **5,6, 14, 15, 19, 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Admit prior Art (APA) (page 1-3) in view of AIX Version 4.3 Communications Programming

Concepts and further in view of Obermarch et al (US Patent: 4,847,754).

As to claim 5, APA does not teach first indicator for the first processor, indicate ...first

processor, the first processor is not propagating. However, Obermarck teaches excess, message

buffer capacity /credit / the consumer logic 30 (col 5, ln 23-56) for concurrent propagation of

data between software modules/RSV (col 4, ln 26-50).

It would have been obvious to apply the teaching of Obermarck to APA in order to

provide simultaneous access to shared resources among concurrently executing processes.

As to claim 6, APA does not explicit teach determining an event, being processed,

pending to be processed, determining a thread-count. However, Obermarck teaches the condition

(col 1, ln 38-46), test RSV to determine whether another process has gained concurrently use of

the resource, col 3, ln 15-23), locks, unlocks (col1, ln 40-61), an indication of credit (col 5, ln 23-

68), the apply counter (APPCNTR) (col 6, ln 19-20, ln 41-44) for concurrent propagation of data

between software modules.

It would have been obvious to apply the teaching of Obermarck to APA in order to

provide simultaneous access to shared resources among concurrently executing processes.

As to claim 14, APA teaches the first software (module 1, fig 1), the second software

(module 2, Fig 1), the auxiliary queue (120, Fig 1), a message (messages, page 2, ln 25-30), two

processors of said plurality of processors (two or more threads (or processes) running on

different processors, page 3, ln 10-15.

APA does not teach processors concurrently propagate a message. However, Obermarck

teaches another process has gained concurrent use of the resource (col 4, ln 27-50) for concurrent

propagation of data between software modules.

It would have been obvious to apply the teaching of Obermarck to APA in order to

provide simultaneous access to shared resources among concurrently executing processes.

As to claim 15, teaches the first software (module 1, fig 1), the second software (module

2, Fig 1), the main queue (a pair of queues, page 2, ln 17-20), a message (messages, page 2, ln

25-30), two processors of said plurality of processors (two or more threads (or processes)

running on different processors, page 3, ln 10-15.

APA does not teach processors concurrently propagate a message. However, Obermarck

teaches another process has gained concurrent use of the resource (col 4, ln 27-50) for concurrent

propagation of data between software modules.

It would have been obvious to apply the teaching of Obermarck to APA in order to

provide simultaneous access to shared resources among concurrently executing processes.

As to a computer readable media of claim 19, see the rejection of claim 5.

As to a computer readable media of claim 20, see the rejection of claim 10.

5.   Claims **12, 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Admit prior

Art (APA) in view of AIXVersion 4.3 Communications Programming Concepts.

and further in view of Heller et al (US. patent 5,404,562).

As to claim 12, APA does not teach a thread-count. However, Obermarck teaches the apply counter (APPCNTR) (col 6, ln 19-20, ln 41-44) for concurrent propagation of data between software modules.

It would have been obvious to apply the teaching of Obermarck to APA in order to provide simultaneous access to shared resources among concurrently executing processes.

APA does not teach a queue count. However, Heller teaches a counter 1907 (col 18, ln 48-49) for concurrent propagation of data between software modules.

It would have been obvious to apply the teaching of Obermarck to APA in order to count the number of coherence control requests and to store a value which the control requests to the shared data.

As to claim 13, APA teaches the synchronization queue ("synchronization queue", page 2, ln1/ 116, Fig 1).

APA does not teach a queue count. However, Heller teaches a counter 1907 (col 18, ln 48-49) for concurrent propagation of data between software modules.

It would have been obvious to apply the teaching of Obermarck to APA in order to count the number of coherence control requests and to store a value which control request to shared data.

6.   Claim **23** is rejected under 35 U.S.C. 103(a) as being unpatentable over Admit prior Art (APA) (page 1-3) in view of AIX Version 4.3 Communications Programming Concepts and further in view of Henry Massalin(A Lock-Free Multiprocessor OS Kernel)

As to a method of claim 23, refer to the rejection of claim 1. Further, APA does not teach with out compromising data integrity. However, Henry teaches Lock Free Synchronization

method/ if we need to maintain consistency over data that does not fit into one of those lock free(
sec. 2.3).

It would have been obvious to apply the teaching of Henry to APA in order to avoid
many serious problems caused by locks such as considerable overhead, concurrency bottlenecks,
deadlocks, and priority inversion in real-time scheduling.

7.   *Conclusion*

Any inquiry concerning this communication or earlier communications from the
examiner should be directed to LeChi Truong whose telephone number is (703) 305 5312. The
examiner can normally be reached on 8 - 5PM.

Fax phone: AFTER_FINAL faxes must be signed and sent to: (703) 746-2738, OFFICAL
faxes must be signed and send to: (703) 746-7239, NON OFFICIAL faxes should not be signed,
please send to: (703) 746-7240

Any inquiry of a general nature or relating to the status of this application or proceeding
should be directed to the receptionist whose telephone number is 703 305 9000.

  LeChi Truong
November 12, 2003

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